

## **MEDICAL TEACHING RESOURCE AND PLAY PRODUCT FOR CHILDREN WITH CHRONIC ILLNESSES**

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application is a continuation of U.S. patent application Ser. No. 10/100,725 entitled "MEDICAL TEACHING RESOURCE AND PLAY PRODUCT FOR CHILDREN WITH CHRONIC ILLNESSES," filed on Mar. 19, 2002, the entire disclosure of which is hereby incorporated by reference herein.

### **FIELD OF THE INVENTION**

[0002] The present invention relates generally to educational toys. More particularly, the invention relates to a toy for educating users, such as caregivers, children, and parents concerning the treatment and management of childhood chronic illnesses including but not limited to asthma, allergies, cystic fibrosis, and diabetes. This invention also relates to an associated kit.

### **BACKGROUND OF THE INVENTION**

[0003] Asthma is a reversible obstructive lung disease, caused by an increased reaction of the airways to various stimuli. Asthma is characterized by excessive sensitivity of the lungs to various stimuli or "triggers". Each person afflicted with asthma may react to different triggers. It is a chronic condition with life-threatening consequences if not properly managed. According to the American Lung Association, asthma is the leading serious chronic childhood illness, affecting approximately 8.6 million children in the United States under 18 years of age. Pediatric asthma has an enormous economic toll in the United States, resulting in nearly \$1 billion in lost productivity cost, and a direct treatment cost approaching \$2 billion. Even though asthma cannot be cured at this time, it can very often be controlled through appropriate medical treatment and patient management. As appropriate to their age and developmental level, children should be included in disease self-management. They should understand what is happening to their body and how the treatment plan helps keep them well.

[0004] Allergic disorders rank first among children's childhood diseases. They are quite common in children. An estimated 40-45 million Americans have some kind of allergy, with most allergies first appearing in childhood. Allergies can show up in different ways in children. Skin rashes, asthma, and allergic rhinitis (the most common of all allergy problems) are some common forms. Many childhood problems are exacerbated by allergies. Allergies are the most common cause of chronic nasal congestion in children. Some allergies (not most) can be fatal. In such cases, education and knowledgeable self-management skills are vital. Early identification and routine treatment will improve quality of life, reduce missed school days and parent work days.

[0005] Cystic Fibrosis is a genetic disease affecting approximately 30,000 children and adults in the United States. Cystic Fibrosis ("CF") causes the body to produce an abnormally thick, sticky mucus, due to the faulty transport of sodium and chloride salt within cell lining organs such as the lungs and pancreas, to their outer surfaces. The thick CF

mucus also obstructs the pancreas, preventing enzymes from reaching the intestines to help break down and digest food. CF has a variety of symptoms including very salty-tasting skin, persistent coughing, wheezing, excessive appetite but poor weight gain, and bulky stools. The treatment of cystic fibrosis depends upon the stage of the disease and organs involved. Some of the equipment used to manage asthma is also used in cystic fibrosis treatment. Cystic Fibrosis is an incurable condition, but its symptoms can help be controlled through appropriate medical treatment and patient management. Cystic fibrosis, too, is a costly disease, but good management can help reduce some of the costs, particularly hospitalization. The potential market for an effective treatment of the associated lung infections is reported to be over \$300 million in the United States alone. Children should be involved in their own disease self-management. Involvement includes an understanding of the disease and an active role in their own treatment and management, as appropriate to their age and developmental level.

[0006] Juvenile Diabetes (Type I) affects more than one million Americans, with 13,000 new children being diagnosed each year. Type 1 diabetes often strikes children suddenly, making them insulin-dependent for life. It can strike adults, but children are more commonly diagnosed with the chronic disease. In Type 1 diabetes an individual's pancreas produces little or no insulin. Insulin is a hormone that is needed to allow the cells in the body to use the energy provided by the foods we eat. Individuals, particularly children, with Type 1 diabetes need constant care and daily monitoring. Type 1 diabetics must take daily glucose readings and perform insulin injections several times a day. It is a very difficult chronic condition to manage. Many factors affect insulin levels needed including diet, exercise, medications, and illness. Type 1 diabetes has a variety of symptoms including extreme thirst, drowsiness, increased appetite, fruity odor in breath, sudden vision changes, and labored breathing. In 1997, the total economic cost of diabetes was estimated to be \$98 billion, which includes \$44 billion in direct medical and treatment costs and \$54 billion for indirect costs. Like asthma and cystic fibrosis above, diabetes can not be cured at this time. However, proper management of the disease allows children to lead as normal lives as possible, while living with a chronic health condition.

[0007] The better that children and parents understand chronic illnesses such as asthma, allergies, cystic fibrosis, and diabetes and their associated treatments, the better the child's condition can be managed. Parents and children with a more complete understanding of the chronic illness are better prepared to manage the illness on a daily basis, and are therefore more likely to reduce unwanted medical crises resulting from the illness. Indeed, patient education is an essential component of successful chronic disease management, according to the American Academy of Pediatrics. Patient education is the mechanism through which patients learn to successfully accomplish chronic illness management tasks. As appropriate, young children should be taught to be active participants in the treatment and management of their chronic illnesses, and should be considered equal members of the management team.

[0008] Presently, a nurse practitioner or physician in an outpatient setting provides illness management education for newly diagnosed children. A chronic illness diagnosis